

**REMARKS**

After the foregoing Amendment, claims 1-21 are currently pending in the above-referenced patent application and are currently amended. No new matter is introduced herein.

**Objections to the Specification**

The Examiner objected to the specification because “the term digital **sung** signal’ is unclear.” (Emphasis in original). Applicants have amended the specification to clarify what is meant by “digital sung signal.” These amendments are supported by Applicants’ originally filed specification at page 6, lines 3-4, which states: “A summed digital signal S3 is therefore obtained at the output of the mixer means 4.” (Emphasis added). Accordingly, Applicants respectfully request withdrawal of this objection to the specification.

The Examiner also objected to the specification because allegedly “the statement ‘said (a) power peak corresponding to the fundamental frequency of a vowel’ is not true, since a power peak only indicates one of harmonics and normally not the fundamental frequency.” It is not clear what changes, exactly, the Examiner is requiring be made to the specification. Accordingly, Applicants respectfully request clarification of what changes the Examiner is requiring be made to the specification.

The Examiner makes an assertion that a power peak “normally” does not indicate the fundamental frequency. Thus, it appears that the Examiner is unsure whether the power peak may indicate the fundamental frequency. Accordingly, if the Examiner is requiring correction or deletion of “power peak corresponding to the fundamental frequency of a vowel,” Applicants respectfully request the Examiner’s

explanation as to why the Examiner believes that a power peak cannot indicate the fundamental frequency.

**Claim Rejections – 35 U.S.C. § 112, second paragraph (indefiniteness)**

Claims 1-21 stand rejected under 35 U.S.C. § 112, second paragraph, because the Examiner believes that the language “digital sung signal” is indefinite. Applicants have amended the claims and, therefore, respectfully request withdrawal of the 35 U.S.C., second paragraph, rejection of claims 1-21.

**Claim Rejections – 35 U.S.C. § 112, first paragraph (enablement)**

Claims 3, 4, 14 and 15 stand rejected under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the enablement requirement. In particular, the Examiner argues that “the claimed limitation ‘means for replacing the fundamental frequency of said speech signal by the fundamental frequency associated with a note of said music signal’ lacks enablement to one of ordinary skill in the art based on the disclosure of the specification....” The Examiner sets forth three reasons for why the Examiner believes the above referenced claim language is not enabled, each of which is addressed below.

**First Reason**

With respect to the first reason, the Examiner states in part:

The examiner has no disagreement that there is common technique (i.e. well known art) used in the art for the extraction [of] the fundamental frequency via FFT. The problem is that the applicant **expressly** says the **incorrect** statement in the specification, so that the examiner has reasonable doubt and responsibility to challenge enablement of the claimed invention.

The claim language “the mixer is further configured to replace the fundamental frequency of the speech signal by the fundamental frequency associated with a note of the music signal” is enabled. In particular, MPEP § 2164.01(b) states that “[a]s long as the specification discloses at least one method of making and using the claimed invention that bears a reasonable correlation to the entire scope of the claim, then the enablement requirement of 35 U.S.C. 112 is satisfied.” As long as undue experimentation is not required, the specification is deemed to meet the enablement requirement of 35 U.S.C. § 112, second paragraph. See, e.g., MPEP § 2164.01.

The Examiner admits that “there is common technique (i.e. well known art) used in the art for the extraction [of] the fundamental frequency via FFT.” Thus, the claim language “the mixer is further configured to replace the fundamental frequency of said speech signal by the fundamental frequency associated with a note of said music signal” is enabled because “at least one method of making and using the claimed invention that bears a reasonable correlation to the entire scope of the claim” (namely, FFT) is understood by one of ordinary skill in the art from Applicants’ specification.

Second Reason

With respect to the second reason, the Examiner argues: “It [] should be clear that this enablement issue is related to the invention’s objective that is aimed to offer some meaningful service (i.e. in light of the specification: page 2, lines 20-23), not whatever mixed junk sound [is] produced).” See Office Action page 5, lines 3-5 (emphasis removed).

35 U.S.C. § 112, first paragraph, states that “the specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same . . . .” (Emphasis added). Applicants’ written description sets forth in full, clear, concise, and exact terms the subject matter of claim 3. See, e.g., Applicants’ specification at page 5, lines 28-30. One of ordinary skill in the art would clearly understand from this how to do what is claimed (e.g., replace the fundamental frequency of one signal with the fundamental frequency of another signal). 35 U.S.C. § 112, first paragraph, does not require anything more.

**Third Reason**

The Examiner asserts that “the claim limitation (replacing frequency) conflicts with the specification disclosure that states ‘a proportion Y% of a musical sinusoidal signal deduced from the signal S2 is substituted for a proportion X% of the speech sinusoidal signal . . . .’ In this case, the replacing frequency conflicts with replacing percentage of the sinusoidal signal because they cannot be compatible.”

There is no requirement that every sentence in the written description enable, or even support, every claim limitation. Indeed, Applicants are entitled to describe and claim multiple embodiments, so long as each claimed embodiment is adequately supported in the specification. The Examiner does not allege that the above referenced claim limitation is not enabled at all, but only that the Examiner believes it conflicts with one sentence in the specification.

Accordingly, Applicants respectfully request withdrawal of the 35 U.S.C. § 112, first paragraph, rejection of claims 3, 4, 14 and 15.

**Claim Rejections - 35 U.S.C. § 103(a)**

Claims 1-7 and 10 stand rejected under 35 U.S.C. § 103(a) as obvious over the combination of Pawate et al. (U.S. Patent No. 5,641,927) and Boss et al. (U.S.

Patent No. 5,915,237). Claim 8 stands rejected under 35 U.S.C. § 103(a) as obvious over the combination of Pawate, Boss and Kageyama et al. (U.S. Patent No. 5,857,171). Claim 9 stands rejected under 36 U.S.C. § 103(a) as obvious over the combination of Pawate, Boss and Kageyama et al. (U.S. Patent No. 5,712,437) ("Kageyama II"). Claims 11-18 and 21 stand rejected under 35 U.S.C. § 103(a) as obvious over the combination of Pawate, Boss and Taniguchi et al. (U.S. Patent No. 5,712,437). Applicants respectfully submit, however, that these claims are patentable over the cited references for at least the reasons set forth below.

Claim 1 recites, in part:

...a receiving unit configured to receive an analog speech signal,  
a converter configured to convert said analog speech signal into a digital speech signal comprising at least one speech signal fundamental frequency,  
a storage unit configured to store a set of coded data representing a musical score comprising a set of notes, each note being defined by a fundamental frequency, a duration, and an instrument that plays said note,  
an extracting unit configured to extract a digital music signal from said set of coded data, and  
a mixer configured to combine a first portion of said digital speech signal and a first portion of said digital music signal to produce a combined digital signal.

With respect to the feature of "a converter configured to convert said analog speech signal into a digital speech signal comprising at least one speech signal fundamental frequency," the Examiner argues that Pawate FIG. 2, which shows a microphone and a pitch estimator 23, discloses this feature of claim 1. At least because Pawate discloses that the pitch is estimated from the artist's vocal and not

that the artist's vocal is converted into a pitch, Pawate does not disclose this feature of Applicants' claim 1.

With respect to the feature of "an extracting unit configured to extract a digital music signal from said set of coded data," the Examiner argues:

...“extracting a digital music signal from said set of coded data” (col. 2, lines 54-67, ‘the pitch estimated and averaged from the original artist’s voice (musical signal), or key (corresponding to pitch) from the background music or that from the CD data field is compared (necessarily extracting music from the related data)’)...

It appears that the Examiner is arguing that in Pawate, the pitch/key is extracted from the CD and that this extraction corresponds to Applicants' extracting a digital music signal from the set of coded data. However, the Examiner argued on page 13, lines 9-11 of the Office Action that Pawate's pitch corresponded to Applicants' digital speech signal comprising at least one fundamental frequency. Thus, it appears that the Examiner is arguing that Applicants' "storing" and "extracting steps" equate to storing a pitch on a CD and then extracting the pitch from the CD. However, Applicants' claim 1 recites "storing a set of coded data" and "extracting a digital music signal from the set of coded data." (Emphasis added).

Accordingly, the Examiner has not established a prima facie case of obviousness. Neither Pawate, nor Boss, nor Kageyana, nor Kageyana II, nor Taniguchi, nor any combination thereof, disclose or suggest all features of Applicants' claim 1. Accordingly, claim 1 is patentable over the cited references.

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Claim 11 includes features similar to claim 1 and is, therefore, patentable over the cited references for at least the same reasons set forth above with respect to claim 1.

Claims 2-10 include all features of claim 1 from which they depend, and claims 12-21 include all features of claim 11 from which they depend. Thus, these claims are also patentable over the cited references of record for at least the reasons set forth above.

Based at least on the arguments set forth above, Applicants respectfully request withdrawal of the 35 U.S.C. § 103(a) rejection of claims 1-21.



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**Conclusion**

If the Examiner believes that any additional minor formal matters need to be addressed in order to place this application in condition for allowance, or that a telephone interview will help to materially advance the prosecution of this application, the Examiner is invited to contact the undersigned by telephone at the Examiner's convenience.

In view of the foregoing amendment and remarks, Applicants respectfully submit that the present application, including claims 1-21, is in condition for allowance and respectfully request a notice to that effect.

Respectfully submitted,

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